

Attorney Docket No.: FMCE-P143

Remarks

Reconsideration of the present application is respectfully requested.

By the present amendment, independent claims 1 and 15 have been amended to clarify that the torque limitation means acts between the actuation bolt and a second part of the bore different from the part of the bore which defines the nut that threadedly engages the actuation bolt. Claims 3-6 and 14 have been amended to be consistent with the amendment to claim 1.

The Examiner has objected to the Abstract as containing terms such as "means" and "said". Accordingly, the original Abstract has been replaced with the new Abstract appearing above. Applicant submits that the replacement Abstract is now in compliance with MPEP §608.01(b).

Claims 1, 2, 4-12, 14 and 15 stand rejected under 35 U.S.C. 102(b) as being anticipated by Yokota (U.S. Patent No. 6,736,384). However, Yokota fails to disclose several features of the invention which are recited in independent claims 1 and 15.

Yokota is directed to a clamp 2 for securing a work piece to the table 1 of a machine tool. Referring to Figure 1, the clamp 2 includes a housing 3 which is positioned in a bore 1a of the table 1, a clamp rod 5 which is supported for both axial and rotational movement in the housing, and an arm 6 which is connected to the distal end of the clamp rod 5. The arm 6 is moved into the clamp-closed position by a piston 15 which engages a shoulder (not numbered) formed on the outer diameter surface of the clamp rod 5. The clamp rod 5 is coupled to an annular sleeve 22 by a converting mechanism 27. The converting mechanism

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27 converts axial movement of the clamp rod 5 relative to the sleeve 22 into rotational movement of the clamp rod relative to the sleeve. The sleeve 22 is normally prevented from rotating relative to the housing 3 by a torque limiter 37. The torque limiter 37 includes two engaging members 39 which are positioned in corresponding apertures (not numbered) that extend through the outer diameter surface of the sleeve 22. The engaging members 39 are biased radially outwardly into engagement with two corresponding axial guide grooves 38 which are formed in the inner peripheral wall 4a of the housing 3 to thereby prevent the sleeve 22 from rotating relative to the housing.

In order to close the clamp 2, pressure is introduced into a clamping chamber 17 located above the piston 15 to force the piston downward. The piston 15 in turn pushes the clamp rod 5 downward relative to the sleeve 22 which, due to the converting mechanism 27 between the clamp rod and the sleeve and the fact that the sleeve is prevented from rotating relative to the housing 3 by the engaging members 39, causes the clamp rod to rotate relative to the housing from the position shown in Figure 1 to its clamping position (not shown). Then, as the clamp rod 5 continues to descend, it engages the top of the sleeve 22 and these two members move axially downward into the clamp-closed position. In order to open the clamp 2, pressure is introduced into an unclamping chamber located below the piston 15 and the process is reversed.

The torque limiter 37 serves to disengage the sleeve 22 from the housing 3 when the torque acting between the clamp rod 5 and the sleeve exceeds a set value (col. 5, lns. 57-67). However, the sole purpose of the torque limiter is to

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prevent the converting mechanism 27 from being damaged by excessive torque (col. 6, lines 3-6). Thus, the torque limiter 37 plays no part in converting rotation of the sleeve 22 into rotation of the clamp rod 5.

With respect to independent claims 1 and 15, therefore, Yokota does not disclose a clamping jaw which comprises a bore having a threaded part which defines a nut that threadedly engages the actuation bolt. The Examiner contends that Yokota's clamp rod 5 is equivalent to applicant's claimed actuation bolt, that the arm 6 is equivalent to the clamping jaw and that the hole 4 is equivalent to the bore. However, Yokota's arm 6 clearly does not comprise a bore which threadedly engages the clamp rod 5. Moreover, the hole 4 is not formed in the arm 6; rather, it is formed in the housing 3. Furthermore, the clamp rod 5 does not threadedly engage the bore 4.

Claims 1 and 15 also require that rotation of the actuation bolt result in translation of the clamping jaw. However, even if one were to assume that the combination of Yokota's clamp rod 5 and arm 6 are equivalent to applicant's claimed clamping jaw, such a structure nevertheless does not include a threaded bore which threadedly engages an actuation bolt in a manner such that rotation of the actuation bolt causes translation of the clamping jaw.

Therefore, Yokota does not anticipate claims 1 and 15. Furthermore, since claims 2, 4-12 and 14 depend from claim 1, Yokota does not anticipate these claims for the reasons stated above.


The Examiner has stated that claim 3 would be allowable if it is rewritten in independent form to include the limitations of its base and intervening claims.

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However, claim 3 depends on claim 1, which as discussed above is patentable over Yokota. Therefore, applicant submits that claim 3 does not need to be rewritten.

For the foregoing reasons, claims 1-6, 8-12, 14 and 15 are submitted as allowable. Favorable action is solicited.

Respectfully submitted,



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